data areas being managed by the time series; and

bookmark information areas respectively provided at predetermined locations in said plurality of data areas, each having a pair of bookmark information indicative of a time corresponding to a time series data piece loaded in each of said data areas and state transition information indicative of a state of the data piece in said each data area, said state transition information being allowed to have one of a value indicative of an online state in which the data area is permitted to be retrieved and a value indicative of a loading state in which loading of data in the data area has not yet been completed and the data area is not permitted to be retrieved.

4. (Thrice Amended) A data structure, stored on a storage medium, in a database, comprising:

a plurality of data areas in which given time series data pieces are loaded at predetermined locations, respectively, in said database, each of said plurality of data areas being loaded with data [for] generated in time series during a certain time, the plurality of data areas being managed by the time series; and

predetermined bookmark information areas each having a pair of bookmark information indicative of a time corresponding to a time series data piece loaded in each of said data areas and state transition information indicative of a state of the data piece in each data area, said state transition information having one of a value indicative of an online state in which the data area is permitted to be retrieved and a value indicative of a loading state in which loading of data in each data area has not yet been completed and the data area is not permitted to be

C2 retrieved.

SUB E3>

7. (Thrice Amended) A database managing method for managing data in a database, comprising:

adding, to a predetermined location in a given time series data piece for a predetermined time, bookmark information having bookmark information indicative of a time corresponding to said time series data piece for said predetermined time and state transition information indicative of a state of said time series data piece for said predetermined time;

C3

providing, as said state transition information, one of a value indicative of an online state in which the data area is permitted to be retrieved, a value indicative of a loading state in which loading of data in the data area has not yet been completed and the data area is not permitted to be retrieved and a value indicative of a state in which data in the data area is empty; and

loading time series data pieces for predetermined times in a plurality of data areas in said database, each of said plurality of data areas being loaded with data [for] generated in time series during a certain time, the plurality of data areas being managed by the time series.

SUB E4>

C4

12. (Thrice Amended) A database managing method for managing data in a database, comprising [the steps of]:

adding, to a predetermined location in a given time series data piece for a predetermined time, bookmark information having bookmark information indicative

of a time corresponding to said time series data piece for said predetermined time and state transition information indicative of a state of said time series data piece for said predetermined time and start area information having a flag indicating whether the area is the final one of a plurality of areas in said database and an address area for setting an address;

providing, as said state transition information, one of a value indicative of an online state in which the data area is permitted to be retrieved and a value indicative of a loading state in which loading of data in the data area has not yet been completed and the data area is not permitted to be retrieved;

loading time series data pieces for predetermined times in a plurality of consecutive data areas in said database, each of said plurality of consecutive data areas being loaded with data [for] generated in time series during a certain time, the plurality of consecutive data areas being managed by the time series; and

raising said flag of start area information in the final one of said plurality of consecutive data areas and setting an address of first one of said plurality of consecutive data areas in said address area.

SUB E5

14. (Thrice Amended) A database managing method for managing data in a database, comprising [the steps of]:

reading bookmark information having bookmark information indicative of a time corresponding to a given time series data piece for a predetermined time and state transition information indicative of a state of said time series data piece for said predetermined time from a predetermined bookmark area and setting the state of

said time series data piece in said state transition information to a value indicative of a state in which data is empty so as to write said bookmark information in said database; and

loading given time series data pieces for given predetermined times in a plurality of data areas in said database, each of said plurality of data areas being loaded with data [for] generated in time series during a certain time, the plurality of data areas being managed by the time series; and

writing bookmark information having bookmark information indicative of a time corresponding to a time series data piece for said predetermined time and state transition information indicative of an online state of said time series data piece for said predetermined time in said predetermined bookmark area.

19. (Thrice Amended) A database managing method according to claim 14, further comprising [the steps of]:

cumulating repeatedly applied time series data pieces in a cumulative storage area until the cumulative data reach total data for said predetermined time; and

adding, to a data piece in said cumulative data storage area, bookmark information having bookmark information indicative of a time corresponding to said data piece for said predetermined time and state transition information indicate of a state of said time series data piece for said predetermined time and loading resulting data pieces in said plurality of data areas in said database, each of said plurality of data areas being loaded with data [for] generated in time series during a certain time, the plurality of data areas being managed by the time series.